

MISHKIN

The Economics of Money, Banking,
and Financial Markets



TENTH EDITION

Chapter 15

Tools of Monetary Policy



The Market For Reserves and the Federal Funds Rate

- Demand and Supply in the Market for Reserves
- What happens to the quantity of reserves demanded by banks, holding everything else constant, as the federal funds rate changes?
- Excess reserves are insurance against deposit outflows
 - The cost of holding these is the interest rate that could have been earned minus the interest rate that is paid on these reserves, i_{er}



Demand in the Market for Reserves

- Since the fall of 2008 the Fed has paid interest on reserves at a level that is set at a fixed amount below the federal funds rate target.
- When the federal funds rate is above the rate paid on excess reserves, i_{er} , as the federal funds rate decreases, the opportunity cost of holding excess reserves falls and the quantity of reserves demanded rises
- Downward sloping demand curve that becomes flat (infinitely elastic) at i_{er}

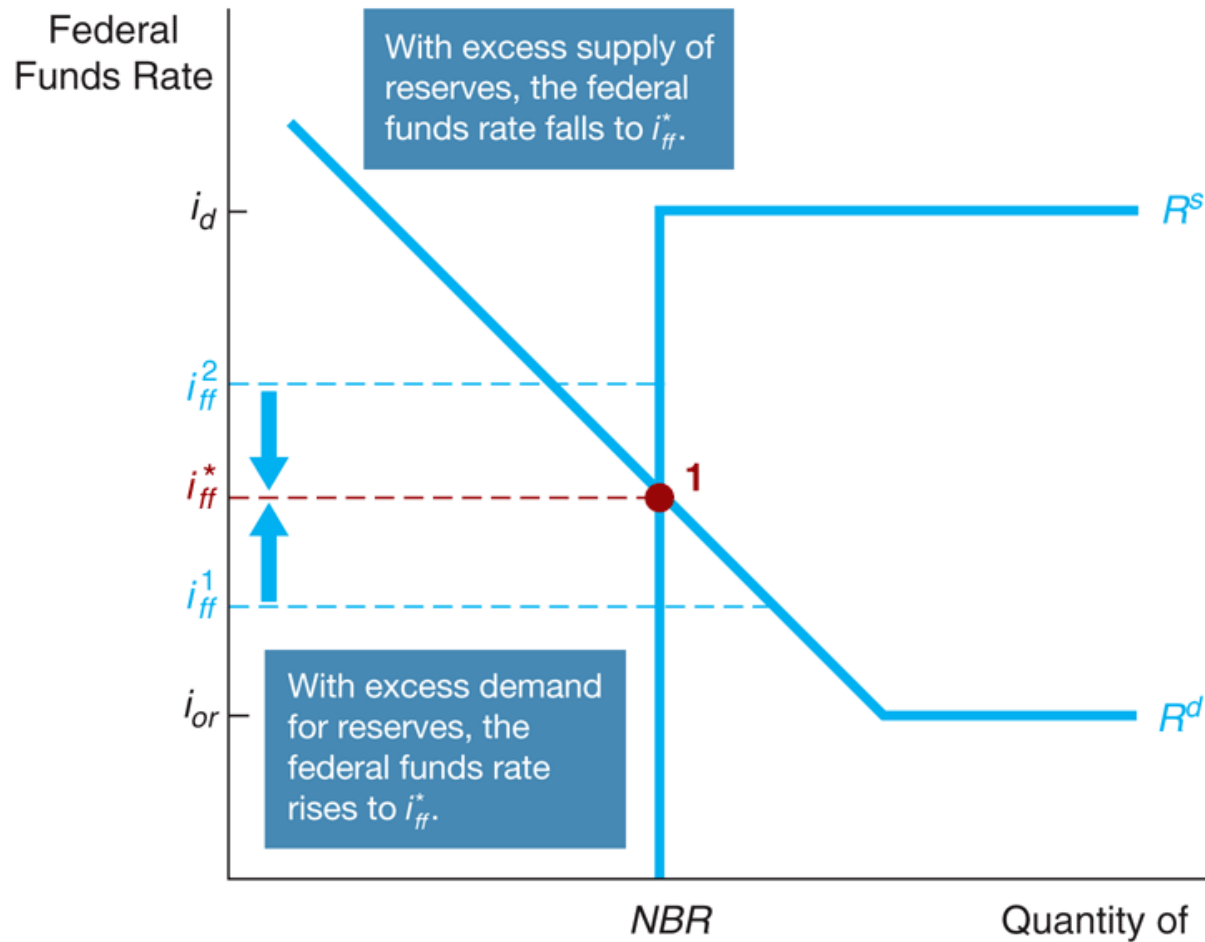


Supply in the Market for Reserves

- Two components: non-borrowed and borrowed reserves
- Cost of borrowing from the Fed is the discount rate
- Borrowing from the Fed is a substitute for borrowing from other banks
- If $i_{ff} < i_{dr}$ then banks will not borrow from the Fed and borrowed reserves are zero
- The supply curve will be vertical
- As i_{ff} rises above i_{dr} banks will borrow more and more at i_{dr} and re-lend at i_{ff}
- The supply curve is horizontal (perfectly elastic) at i_d



Figure 1 Equilibrium in the Market for Reserves





How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate

- Effects of open an market operation depends on whether the supply curve initially intersects the demand curve in its downward sloped section versus its flat section.
- An open market purchase causes the federal funds rate to fall whereas an open market sale causes the federal funds rate to rise (when intersection occurs at the downward sloped section).



How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate (cont'd)

- Open market operations have no effect on the federal funds rate when intersection occurs at the flat section of the demand curve.



How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate (cont'd)

- If the intersection of supply and demand occurs on the vertical section of the supply curve, a change in the discount rate will have no effect on the federal funds rate.
- If the intersection of supply and demand occurs on the horizontal section of the supply curve, a change in the discount rate shifts that portion of the supply curve and the federal funds rate may either rise or fall depending on the change in the discount rate

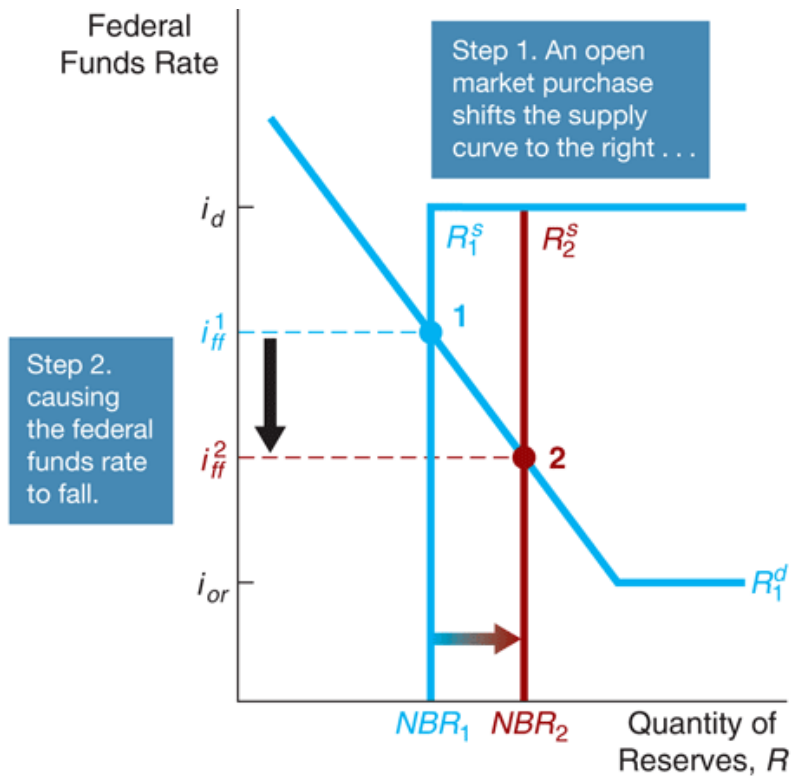


How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate (cont'd)

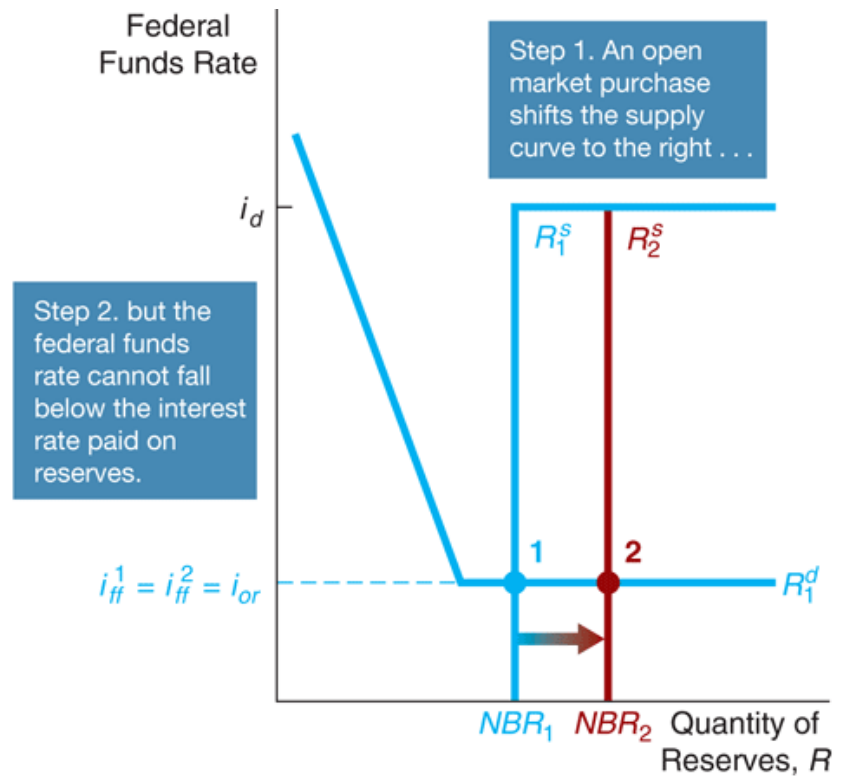
- When the Fed raises reserve requirement, the federal funds rate rises and when the Fed decreases reserve requirement, the federal funds rate falls.



Figure 2 Response to an Open Market Operation



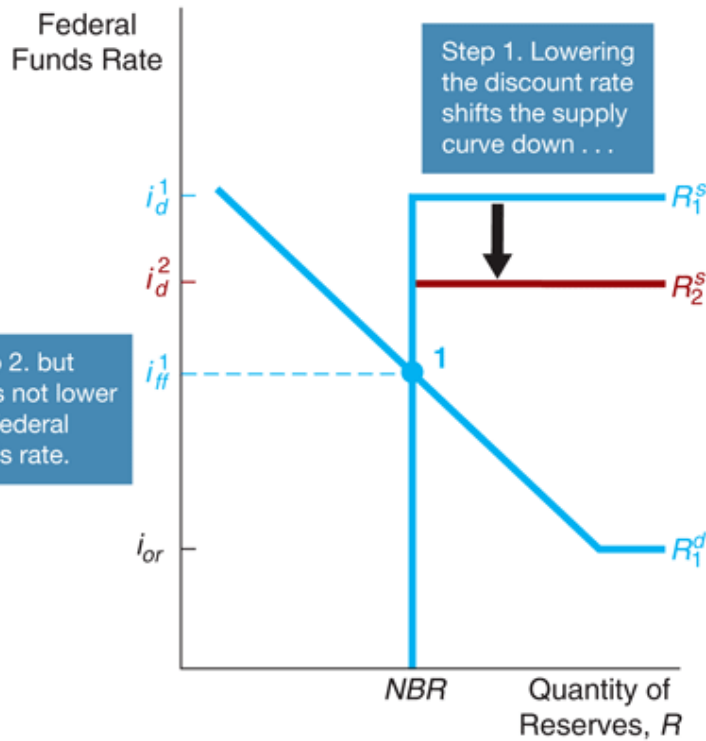
(a) Supply curve initially intersects demand curve in its downward-sloping section



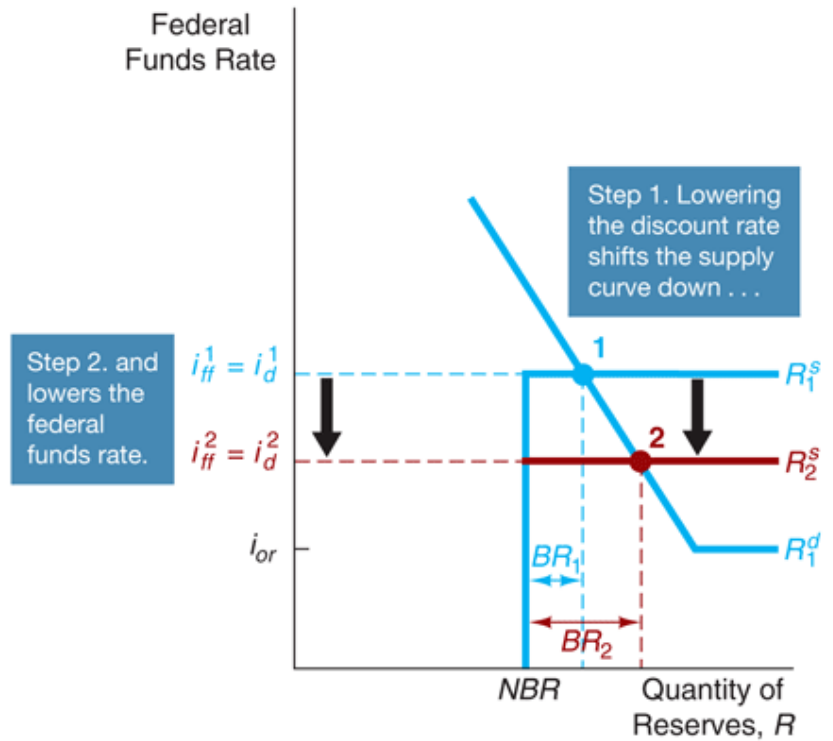
(b) Supply curve initially intersects demand curve in its flat section



Figure 3 Response to a Change in the Discount Rate



(a) No discount lending ($BR = 0$)



(b) Some discount lending ($BR > 0$)



Figure 4 Response to a Change in Required Reserves

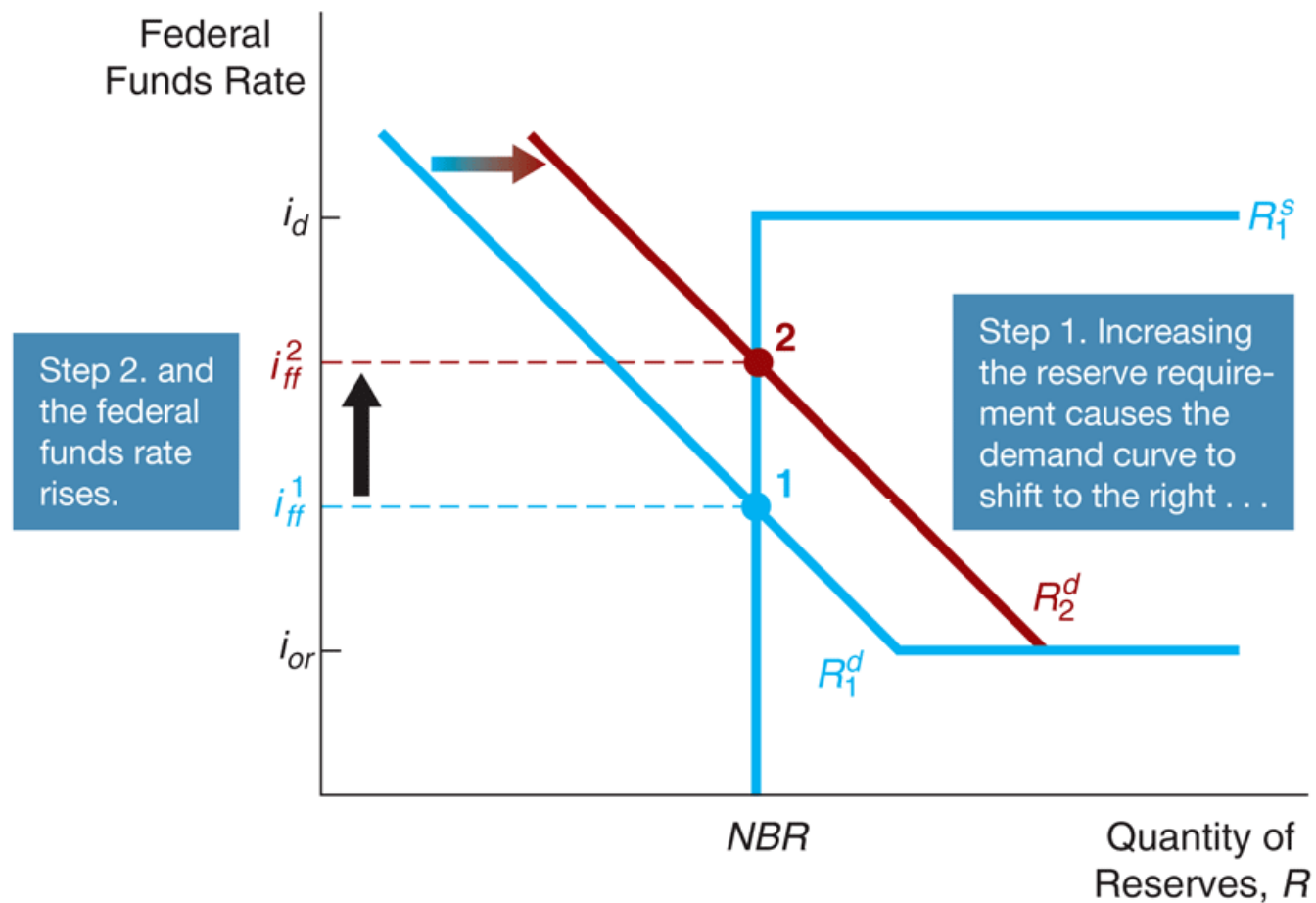




Figure 5 Response to a Change in the Interest Rate on Reserves

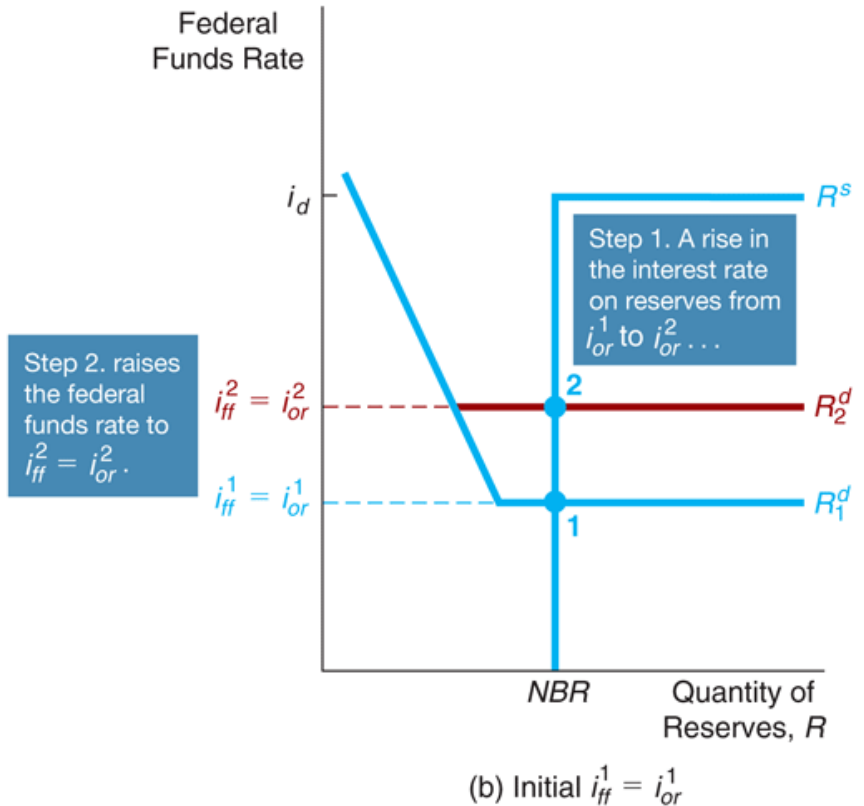
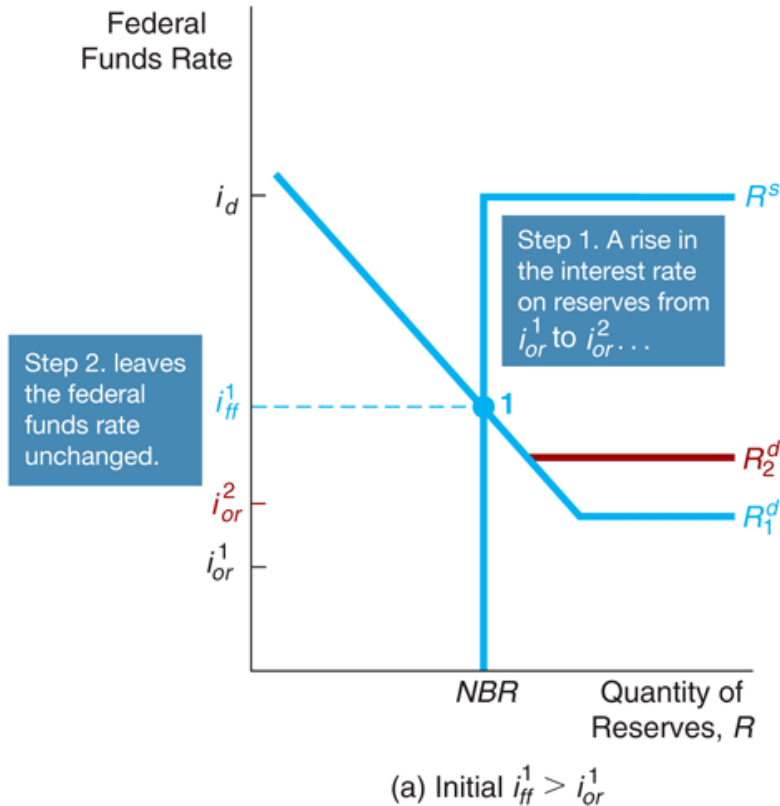
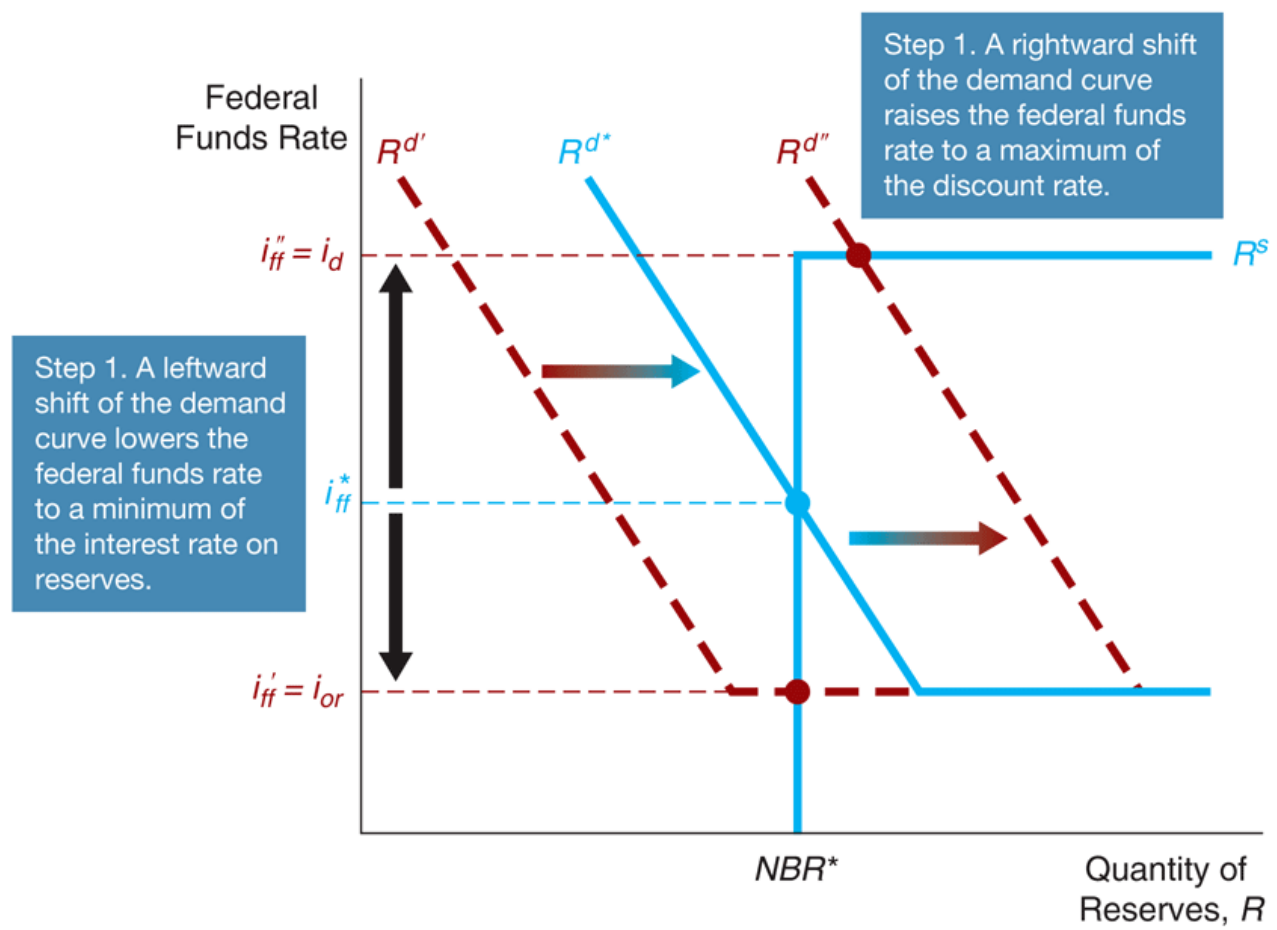




Figure 6 How the Federal Reserve's Operating Procedures Limit Fluctuations in the Federal Funds Rate





Conventional Monetary Policy Tools

- During normal times, the Federal Reserve uses three tools of monetary policy—open market operations, discount lending, and reserve requirements—to control the money supply and interest rates, and these are referred to as conventional monetary policy tools.



Open Market Operations

- Dynamic open market operations
- Defensive open market operations
- Primary dealers
- TRAPS (Trading Room Automated Processing System)
- Repurchase agreements
- Matched sale-purchase agreements



Advantages of Open Market Operations

- The Fed has complete control over the volume
- Flexible and precise
- Easily reversed
- Quickly implemented



Discount Policy and the Lender of Last Resort

- Discount window
- Primary credit: standing lending facility
 - Lombard facility
- Secondary credit
- Seasonal credit
- Lender of last resort to prevent financial panics
 - Creates moral hazard problem



Advantages and Disadvantages of Discount Policy

- Used to perform role of lender of last resort
 - Important during the subprime financial crisis of 2007-2008.
- Cannot be controlled by the Fed; the decision maker is the bank
- Discount facility is used as a backup facility to prevent the federal funds rate from rising too far above the target



Reserve Requirements

- Depository Institutions Deregulation and Monetary Control Act of 1980 sets the reserve requirement the same for all depository institutions
- 3% of the first \$48.3 million of checkable deposits; 10% of checkable deposits over \$48.3 million
- The Fed can vary the 10% requirement between 8% to 14%



Disadvantages of Reserve Requirements

- No longer binding for most banks
- Can cause liquidity problems
- Increases uncertainty for banks



Nonconventional Monetary Policy Tools During the Global Financial Crisis

- Liquidity provision: The Federal Reserve implemented unprecedented increases in its lending facilities to provide liquidity to the financial markets
 - Discount Window Expansion
 - Term Auction Facility
 - New Lending Programs
- **Asset Purchases**: During the crisis the Fed started two new asset purchase programs to lower interest rates for particular types of credit: Government Sponsored Entities Purchase Program; QE2



Monetary Policy Tools of the European Central Bank

- Open market operations
 - Main refinancing operations
 - Weekly reverse transactions
 - Longer-term refinancing operations
- Lending to banks
 - Marginal lending facility/marginal lending rate
 - Deposit facility



Monetary Policy Tools of the European Central Bank (cont'd)

- Reserve Requirements
 - 2% of the total amount of checking deposits and other short-term deposits
 - Pays interest on those deposits so cost of complying is low